

Section 6. Pyramid Servings Intake Programs

Two sets of programs are provided with the Pyramid Servings Database for USDA Survey Food Codes. The first set creates two types of Pyramid Servings Intake records by joining the Pyramid Servings data file with the 1994-96, 1998 Continuing Survey of Food Intakes by Individuals (CSFII 1994-96, 1998) microdata (USDA/ARS 2000). The CSFII microdata is not a part of this database; it can be purchased from National Technical Information Service (NTIS: <http://www.ntis.gov/fcpc/ntcallhs.htm#FoodInt/>). The second set of programs illustrate adjustments that ARS suggests be made when using the Pyramid Servings Intake records for analysis.

SAS® (SAS 1990) has been chosen as the language in which to present these programs. It is not necessary, however, to use SAS® specifically to process and analyze the data; nor, is the USDA recommending SAS® over other software systems. These programs can serve as models for other software systems.

These programs require at least minimal editing to provide directory and file names. Each program ran successfully under SAS® version 6.12 running on a UNIX operating system, and SAS® version 8 running under Windows 98®. Nevertheless, other editing may be necessary for these programs to run under conditions different than those applied here.

6.1. Creation of CSFII Pyramid Serving intake records

Three programs assist users in:

- C loading the Servings data file (fsrv9498.txt) into a SAS® system file
- C joining Servings data to CSFII 1994-96, 1998 microdata on
 - individual food intakes (record type 30)
 - sample person and household data (record type 25)
- C creating Pyramid servings intake data, i.e.,
 - individual Pyramid Serving intake records per person per food code (record type 32)
 - daily Servings intakes per person (record type 42)

The programs described below are sequential and need to be executed in the order they are listed.

- (1) readfsrv.sas - reads the fixed format Pyramid Servings data file (fsrv9498.txt) and stores the data as fsrv9498.ssd. The SAS® output from this program serves as input into the rt32.sas program file.

Program requirements:

Pyramid Servings data for USDA survey food codes (fsrv9498.txt) in ASCII fixed format.

- (2) rt32.sas - joins the fsrv9498.ssd SAS® data file with the CSFII 1994-96, 1998 intakes (record types 30 and 25) to create CSFII 1994-96, 1998 Pyramid intake data for individuals two years of age and older.

The output file (r32.ssd) contains one record per food (line item) for each responding sample person for each day. Each record has data on the number of servings of each of the 30 pyramid food groups (see Table 1, page 3-5).

Program requirements:

Pyramid Servings data per 100 grams foods (fsrv9498.txt) read and saved as a SAS® file (see readfsrv.sas)

CSFII 1994-96, 1998 intake data (rt30.ssd and rt25.ssd) as SAS® files (from USDA/ARS 2000)

- (3) rt42.sas - summarizes the individual Pyramid Servings intakes (rt32.ssd) and produces daily intakes for Day 1 and Day 2, and a 2-day average for respondents with completed 2 days of intakes.

The output file, rt42.ssd, contains one record per responding sample person two years of age and older for each day of intake, and for the 2-day average. Each record has data on the number of servings of each of the 30 pyramid food groups (see Table 1, page 3-5).

Program requirements:

CSFII 1994-96, 1998 Pyramid Servings intake data (rt32.ssd) as a SAS® file (see rt32.sas)

CSFII 1994-96, 1998 sample person data (rt25.ssd) as a SAS® file (from USDA/ARS 2000)

See Section 5.4 for information on statistical issues to be considered when using the servings intake files (rt32.ssd and rt42.ssd). See also the documentation provided with the CSFII 1994-96, 1998 microdata (USDA/ARS 2000) for additional information on using the intake data, programs for reading and storing record types 25 and 30 as SAS® files, and programs that demonstrate the use of SUDAAN® to estimate mean intake and the associated standard errors.

6.2. Comparing the Pyramid Serving intakes to Pyramid recommendations

For most applications, the Pyramid Servings intake data (rt32.ssd and rt42.ssd) needs to be adjusted before intakes can be summarized and reported. Minimally, ARS suggests that the following adjustments be made:

- 1) assign dry beans and peas to either the meat or vegetable group (see Section 5.2)
- 2) adjust for smaller serving sizes for very young children (see Section 5.3)
- 3) establish categories by age and caloric intake for comparing Servings intakes to Pyramid recommendations.

The following programs provide sample code for making these suggested adjustments. This code can be integrated into user defined analysis programs to perform the adjustments, along with other analytical requirements defined by the user.

drybp.sas Assigns dry beans and peas to a specific Pyramid group.

According to the Food Guide Pyramid (USDA 1992) cooked dry beans and peas can be counted as either a 1 ounce lean meat equivalent or a vegetable (see Section 5.2). Appropriate precautions are required to ensure that dry beans and peas are counted toward just one of these major food groups, and not both.

servadj.sas Adjusts Servings intake data for the grain, vegetable, and fruit groups to account for the smaller serving sizes recommended for young children.

The recommended serving size for very young children (2 through 3 years of age) is 2/3 the standard serving for the grain, vegetable, and fruit groups. (See Section 5.3).

This adjustment uses the formula:

Number of standard servings $\times 1.5$ = adjusted number of servings
where 1.5 is 1 divided by 2/3.

pyrrecom.sas Compares Pyramid Serving intakes for each sample person to the recommended number of servings.

The Pyramid recommendations (USDA 1992) for the number of grain, vegetable, fruit, and meat servings are based on age, sex, body size, and level of physical activity. This program shows how to operationalize Pyramid Serving intakes for individuals over 6 years of age compared to the recommendations based on caloric intakes. Recommendations for dairy servings and young children (2-6 years of age) are dependent upon

age alone (USDA and USDHHS 2000; USDA/CNPP 1999; Davis et al. 1999).

This program includes code to assign dry beans and peas servings to the meat group (see drybp.sas) and adjust grain, vegetable and fruit Serving intakes to account for the smaller serving sizes recommended for very young children (see servadj.sas). It also includes an adjustment to the recommended number of ounces of the meat and meat alternates for children 2-3 years of age to account for the smaller serving sizes recommended for very young children.

See Section 5.1 for more information on Pyramid recommendations by age and diets at three calorie levels and a discussion on comparing Serving intakes to Pyramid recommendations.

6.3. References

Davis, C.A., A. Escobar, K. Marcoe, C. Tarone, A. Shaw, E. Saltos, R. Powell. 1999. Food Guide Pyramid for Young Children 2-6 years old. U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, CNPP-10.

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USDA (U.S. Department of Agriculture). 1992, slightly revised 1996. The Food Guide Pyramid. USDA Home and Garden Bulletin 252.

USDA and USDHHS (U.S. Department of Agriculture and U.S. Department of Health and Human Services). 2000. Nutrition and Your Health: Dietary Guidelines for Americans, 5th ed. USDA Home and Garden Bulletin No. 232.

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USDA/CNPP (U.S. Department of Agriculture, Center for Nutrition Policy and Promotion). 1999. Tips for Using the Food Guide Pyramid for Young Children 2 to 6 Years Old. CNPP Program Aid 1647.